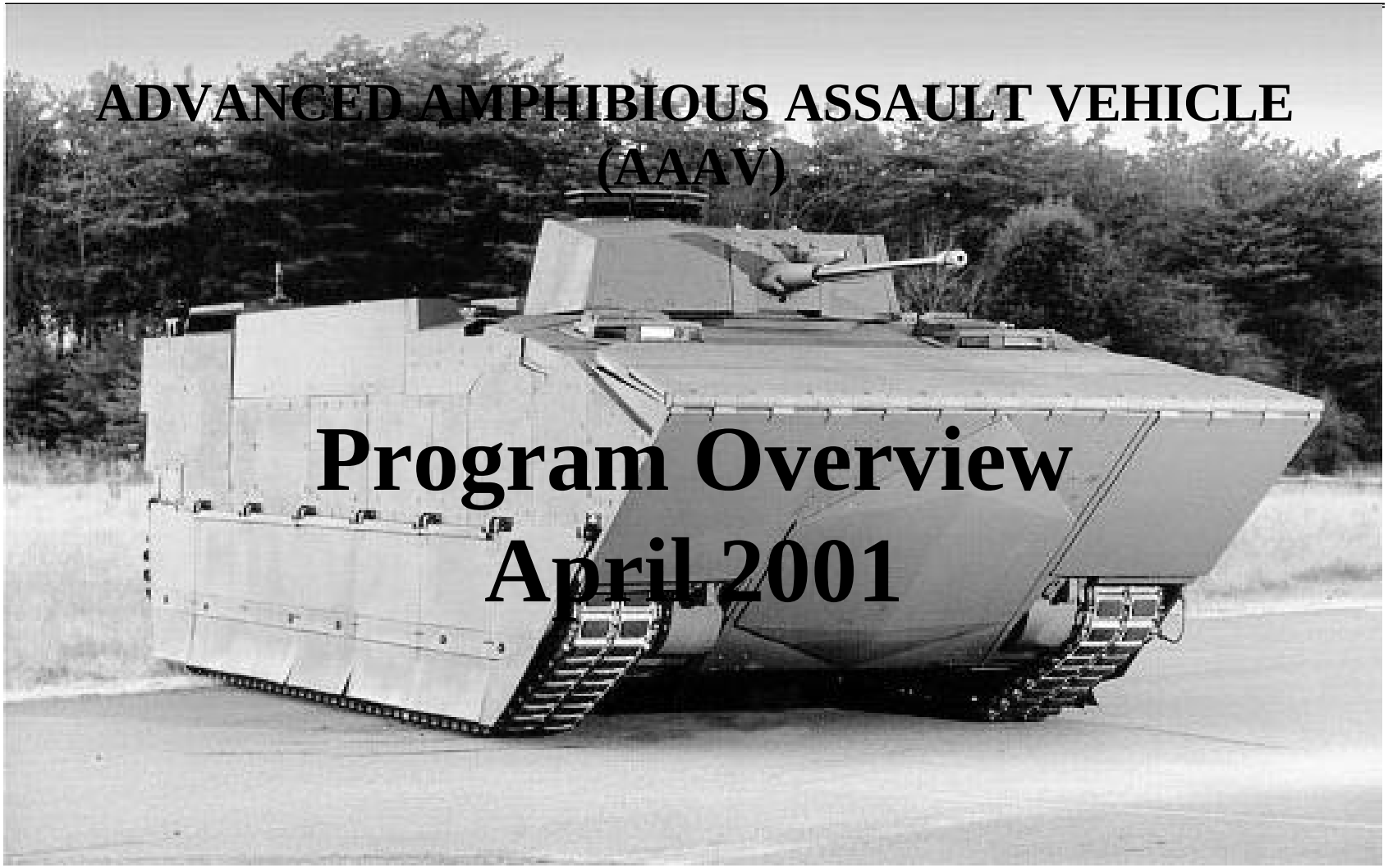
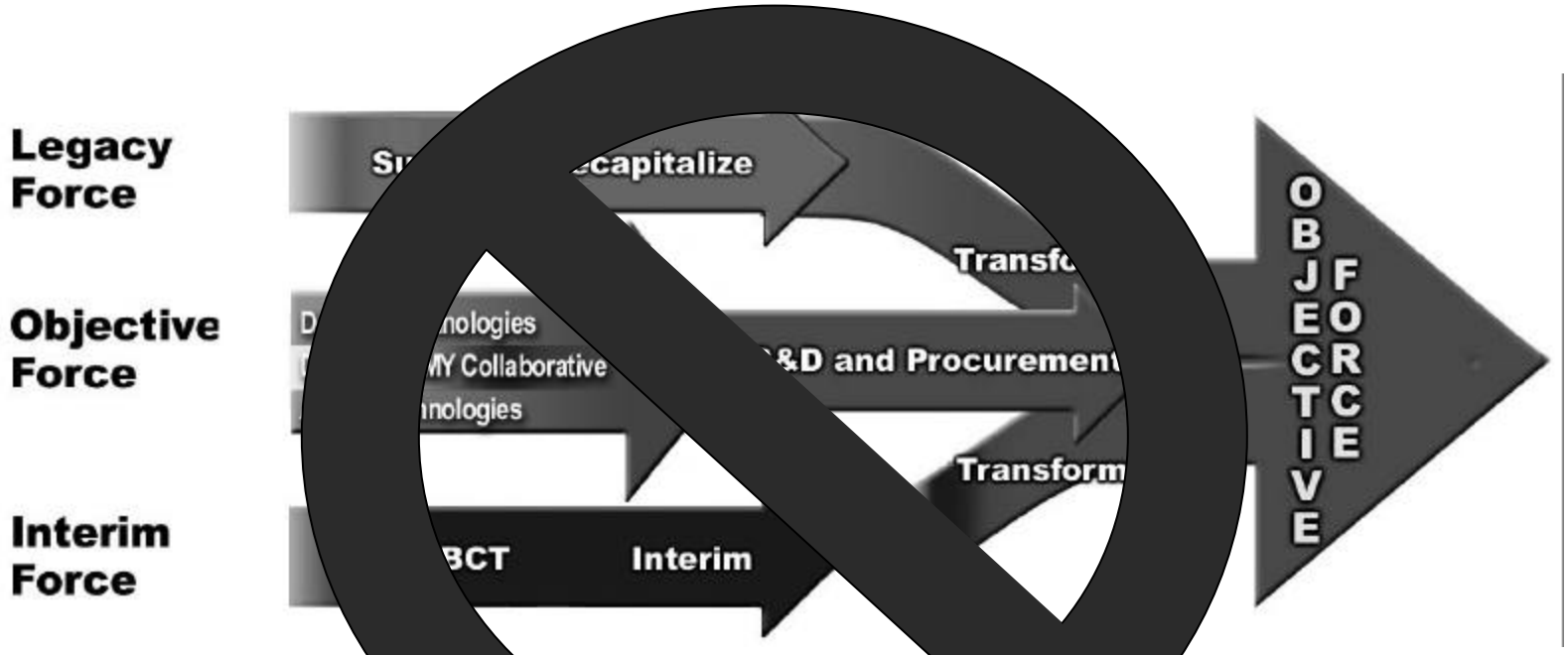
# UNITED STATES MARINE CORPS

## ADVANCED AMPHIBIOUS ASSAULT VEHICLE (AAAV)



# Program Overview
# April 2001

# The Army Transformation




***. . . Respons Deployabl e, Versatile, Lethal, Su stainable.***


AAAV

# Advanced Amphibious Assault Vehicle

**"The AAAV Represents the Ethos and the Signature Mission of the United States Marine Corps**. A Truly Amphibious Vehicle That Will Replace the Marine Corps' Aging Current System and Provide the Capability to Maneuver, Combat Loaded, With a Marine Rifle Squad at 20-25 Knots in the Water, and Maneuver Cross Country With Agility and Mobility Equal or Greater Than That of the M1 Tank.

**The AAAV Will Virtually Revolutionize Every Facet of Marine Corps Combat Operations.** It Is One of the Most Capable All-around Weapon Systems in the World. The Technology to Meet These Requirements Has Been Demonstrated and the Plan to Produce This System Represents the Most Operationally Effective Solution for Meeting Marine Corps Requirements."

General C. C. Krulak , USMC
31st Commandant of the Marine Corps

# *AAAV... Revolutionizing Expeditionary Maneuver Warfare*

## *Past:*

- **WWII Technology &Doctrine**
- **Deficiencies:**
  - **Tactical Mobility**
  - **Close Combat**
  - **Command & Control**

**New System Validation:**

- **Three AOA's/COEA's**
- **Comprehensive Whole Systems Trade Study**

- **15 Years of Technology Development**
- **23 Awards Including Two Packard Awards**

## *Future:*

- **Operational Reach - Land and Water Maneuver**
- **Seamless Maneuver**
- **Precision Lethality**
- **Defensive Stand-off Space for Force Protection of the Amphibious Task Force**

| 1940s | 1950s | 1970 & 1980s | 2006 + |
|---|---|---|---|
|  |  |  |  |
| *LVT-2* | *LVTP-5* | *AAV-7* | *AAAV(P)* |
| ***Water Speed:*** *5 Knots* | *5 Knots* | *6 Knots* | *25 Knots* |
| ***Firepower:*** *50 Caliber MG* | *30 Caliber MG* | *50 Caliber / 40 MM Grenade Launcher* | *30 MM Chain Gun* |

**Leap ahead to 21st Century Technology**

# *Operational Reach/Tactical Flexibility*

**High Water Speed & Rapid Seamless Maneuver Ashore**

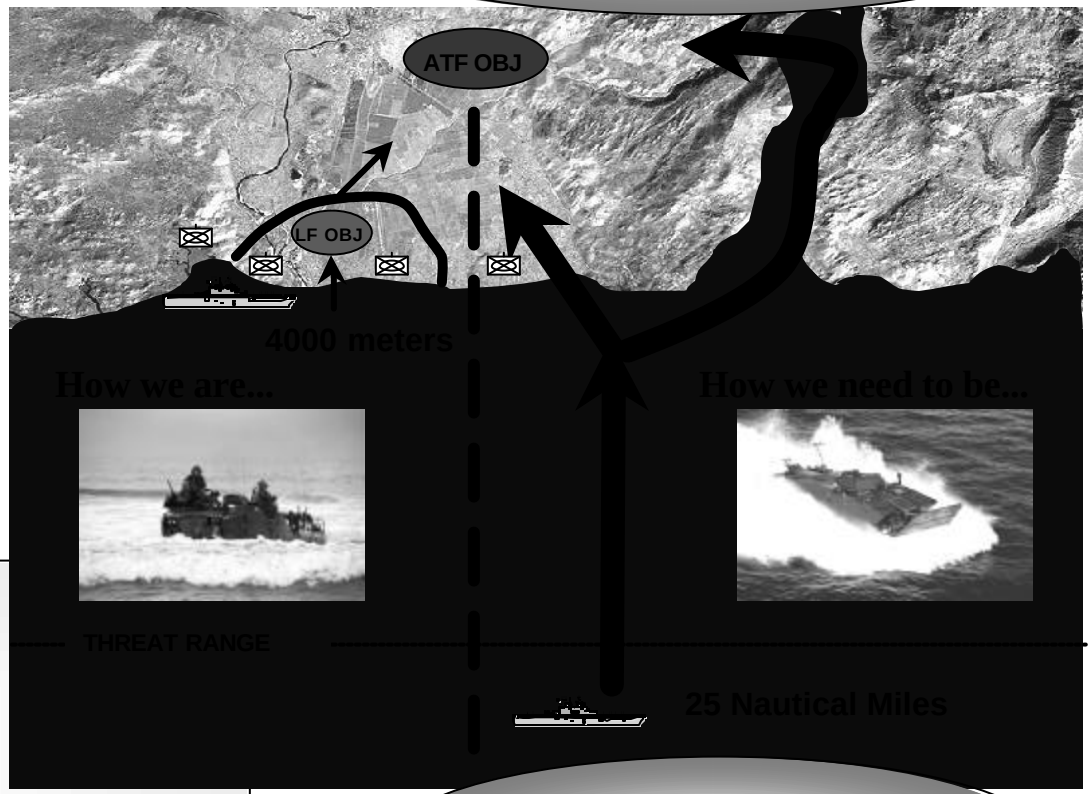
## Technological Leap

**Revolutionary…employing Bodies of Water As Maneuver Space**

**•- Expanded Operational Reach & Lethality**

**•- Unprecedented Tactical Flexibility**

**•- Greatly Increased Force Protection**




## Enhanced Warfighting Capabilities:

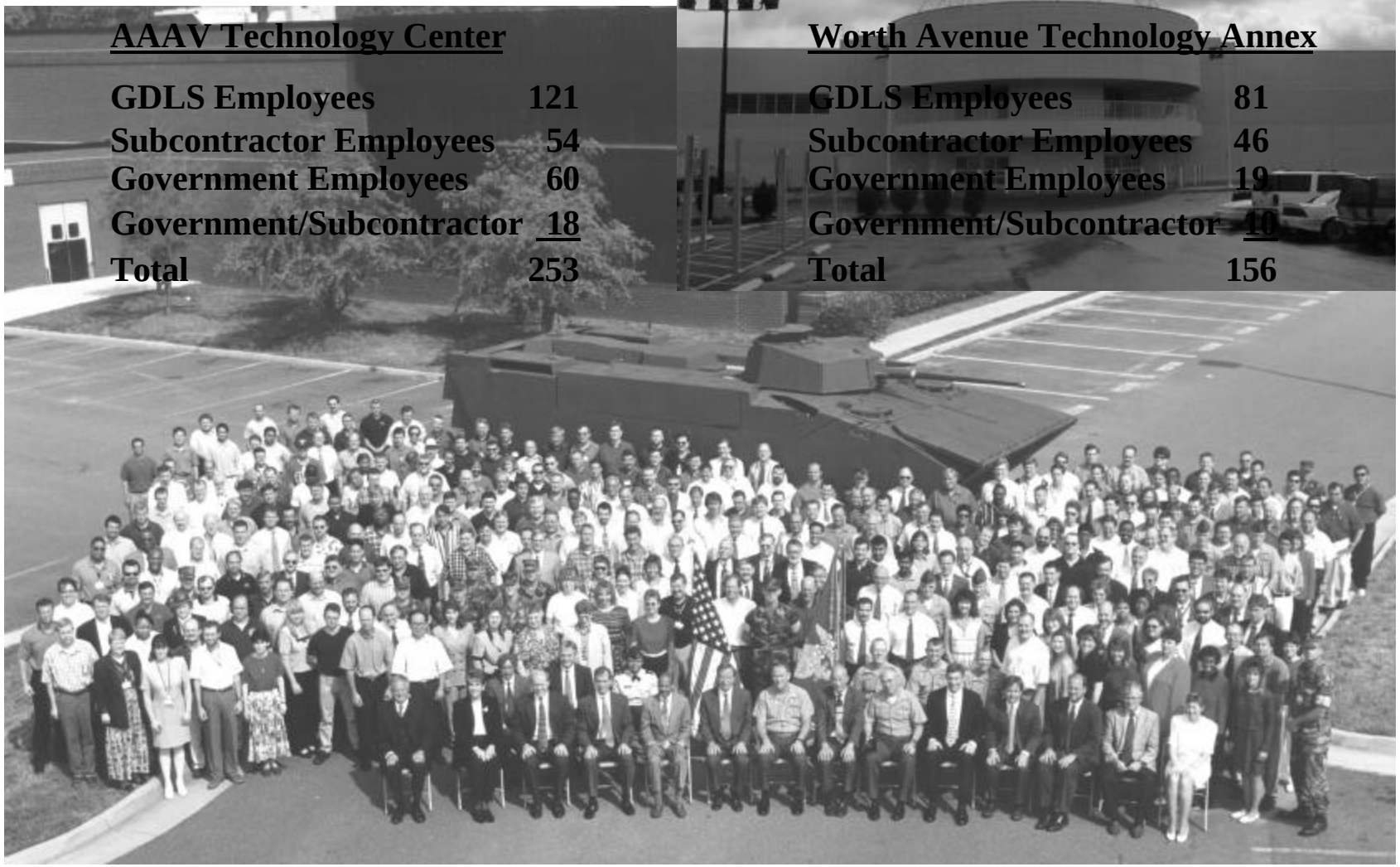
**- Four Times the Maneuver Speed on the Water**

**- - Dramatically Increased Lethality**
**Fire on-the-move, All Weather/Day/Night**

**- Eight Times the Stand-off Distance for Force Protection**

**Exploiting Threat Weakness**

# AAAV Facilities And People

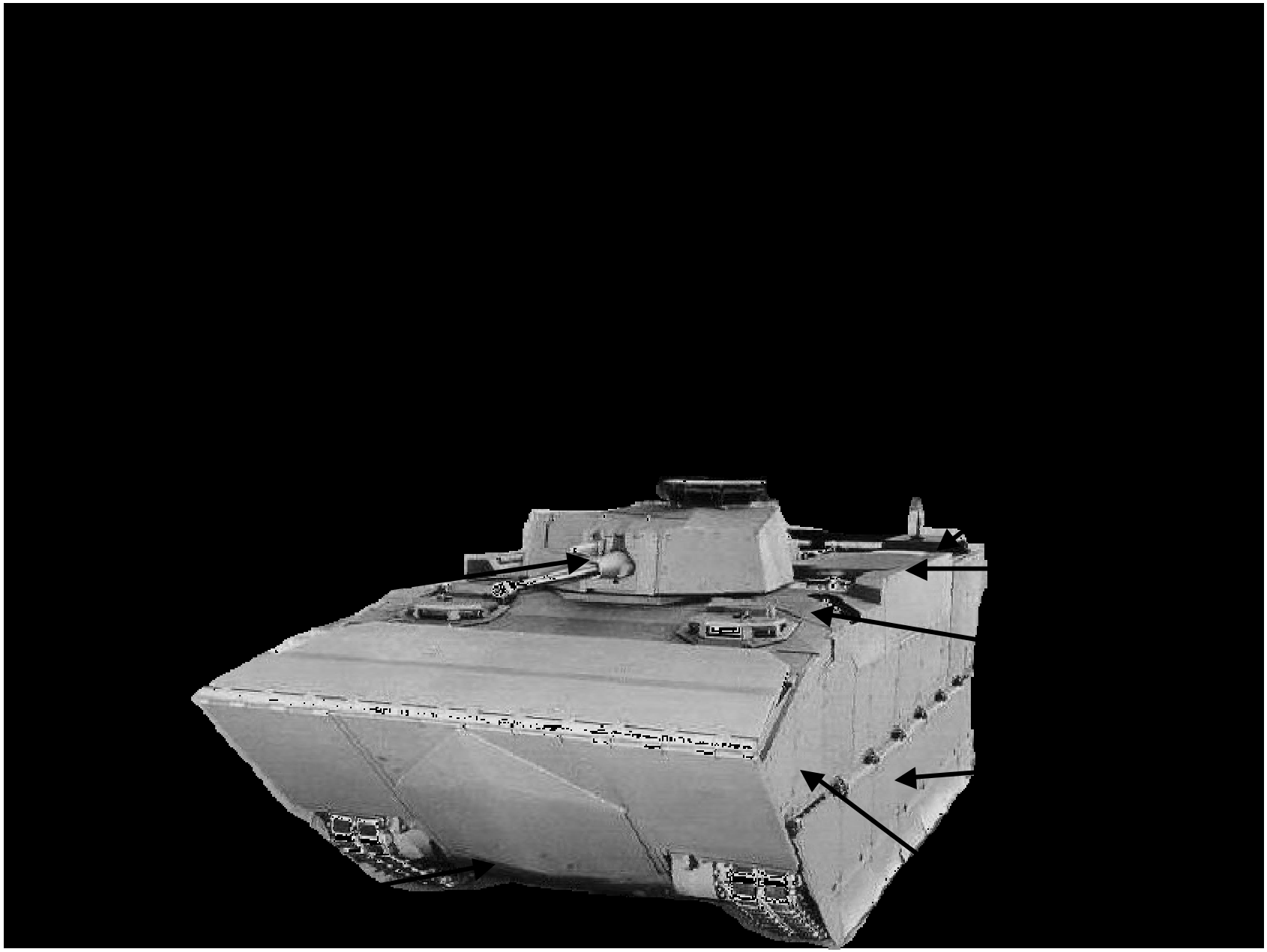


**AAAV Technology Center**

| | |
|---|---|
| GDLS Employees | 121 |
| Subcontractor Employees | 54 |
| Government Employees | 60 |
| Government/Subcontractor | 18 |
| Total | 253 |

**Worth Avenue Technology Annex**

| | |
|---|---|
| GDLS Employees | 81 |
| Subcontractor Employees | 46 |
| Government Employees | 19 |
| Government/Subcontractor | 10 |
| Total | 156 |



# Advanced Amphibious Assault Vehicle (AAAV)

## AAAV (Personnel ) MISSION

- **Provide High Speed Transport of Embarked Marine Infantry From Ships Located Beyond the Horizon to Inland Objectives**
- **Provide Armor Protected Land Mobility and Direct Fire Support During Combat Operations**

## AAAV KEY PERFORMANCE CRITERIA

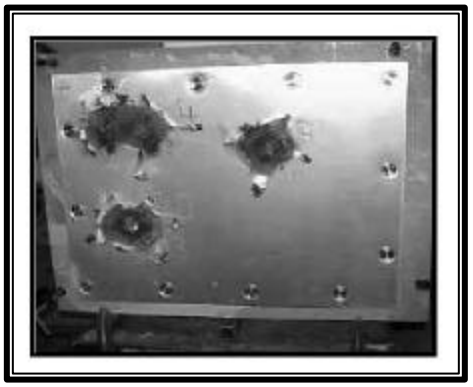
| | Objective | Threshold |
|---|---|---|
| High Water Speed | 25 knots | 20 knots (SS 3) |
| Forward Speed | 72 kph | 69 kph |
| Armor Protection | 30/1000 | 14.5/300 MM/M |
| Firepower | 2000 | 1500 (Max Eff Range) |
| Reliability | 95 Hours | 70 Hours (MTBOMF) |
| Carrying Capacity | 18 Marines | 17 Marines |

# KEY PERFORMANCE PARAMETER PROGRESS

**20 Knots and greater** achieved on 12 Oct 00 for over 60 minutes in Sea State 2 at Patuxent River, MD

**Maximum effective range in excess of 1500 meters** demonstrated against lightly armored vehicles using High Explosive ammunition and against BTR and Threat classified armor targets using Armor Piercing ammunition.

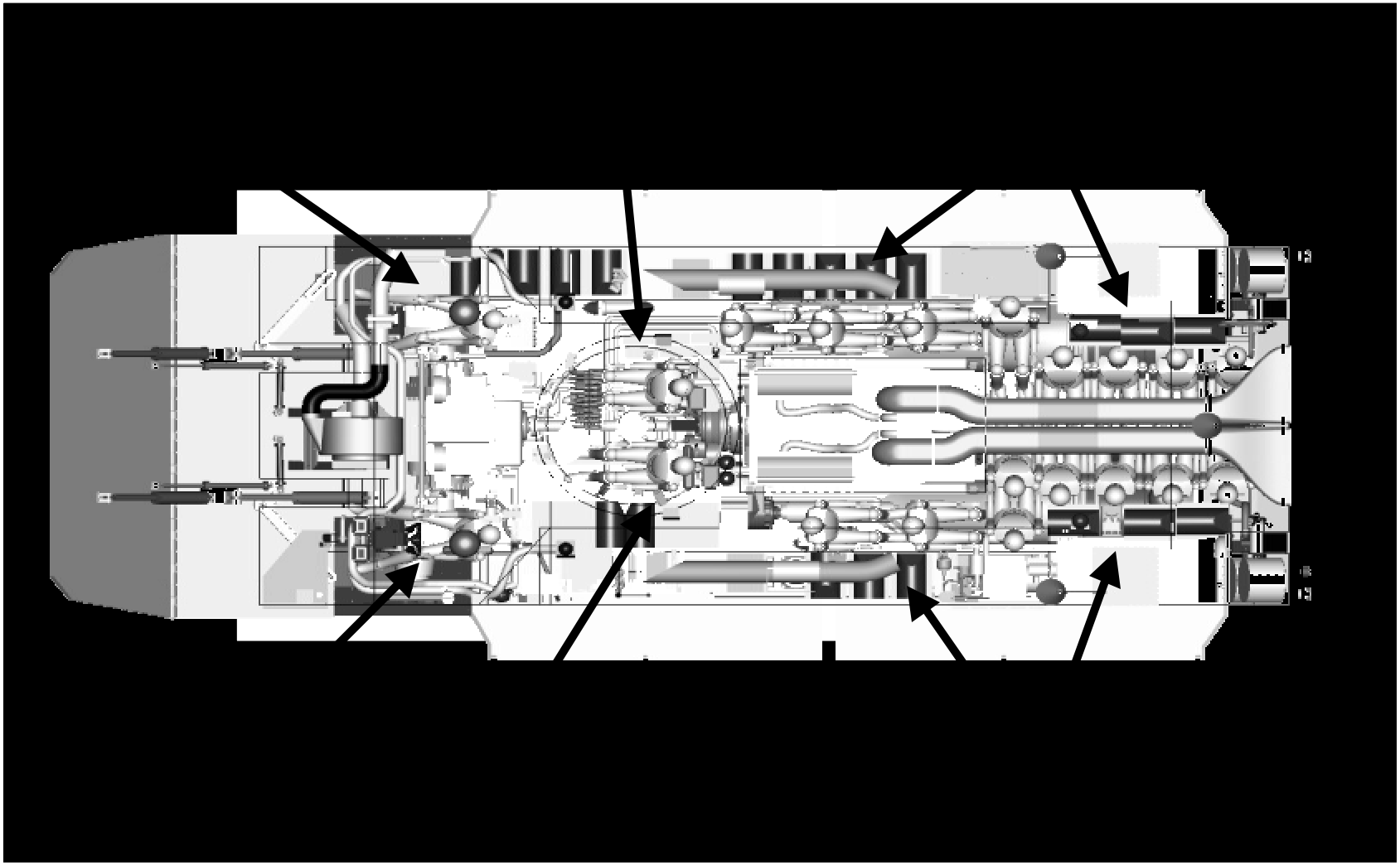
**73.4 Kilometers Per Hour** achieved on hard surface road at Aberdeen Test Center, MD on 5 Oct 00.



**Armor validated** through ballistic testing of 24 armor recipes from 3rd QTR FY98 -1st QTR FY99.

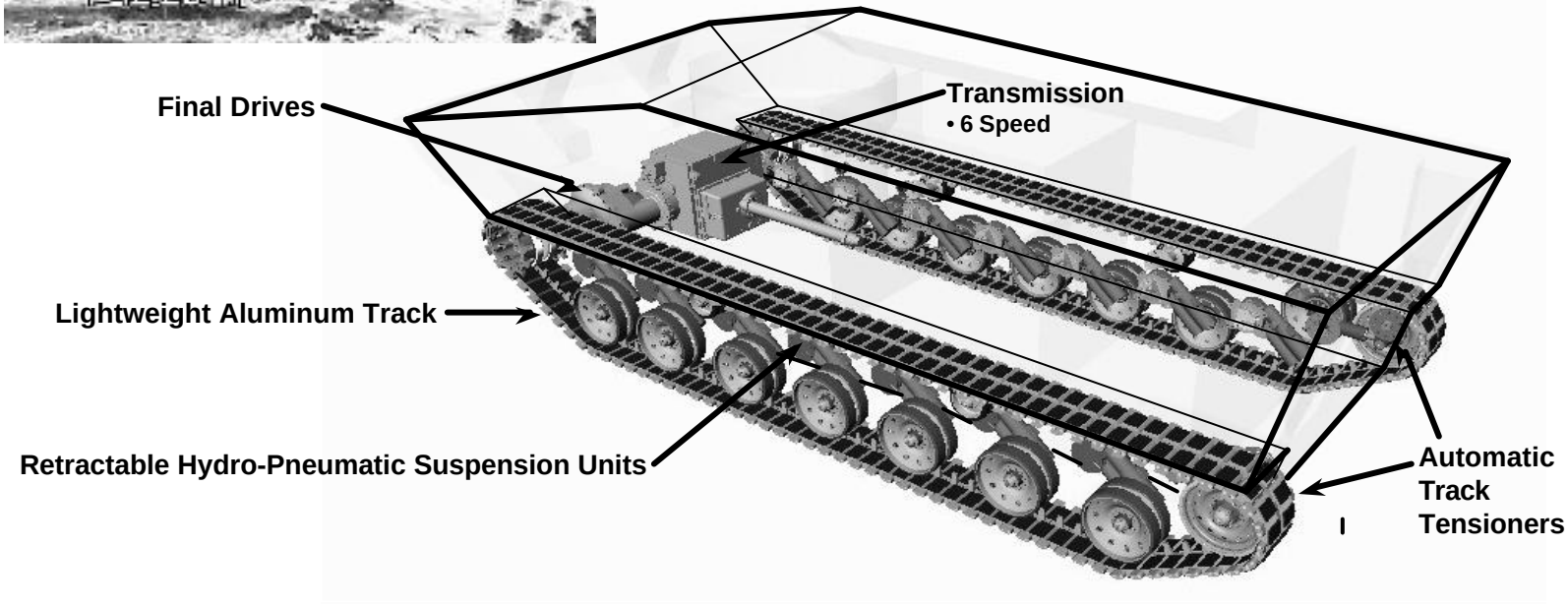
**17 Marine Ingress/Egress** demonstration at ATC, on 3-4 Aug 00.

# AAAV Plan View (Cut-Away)

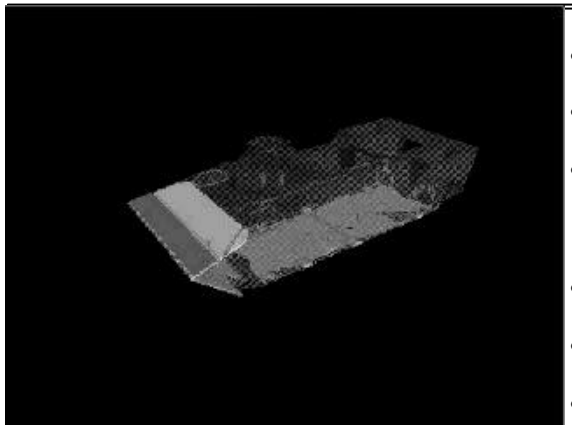


# AAAV Land Mode

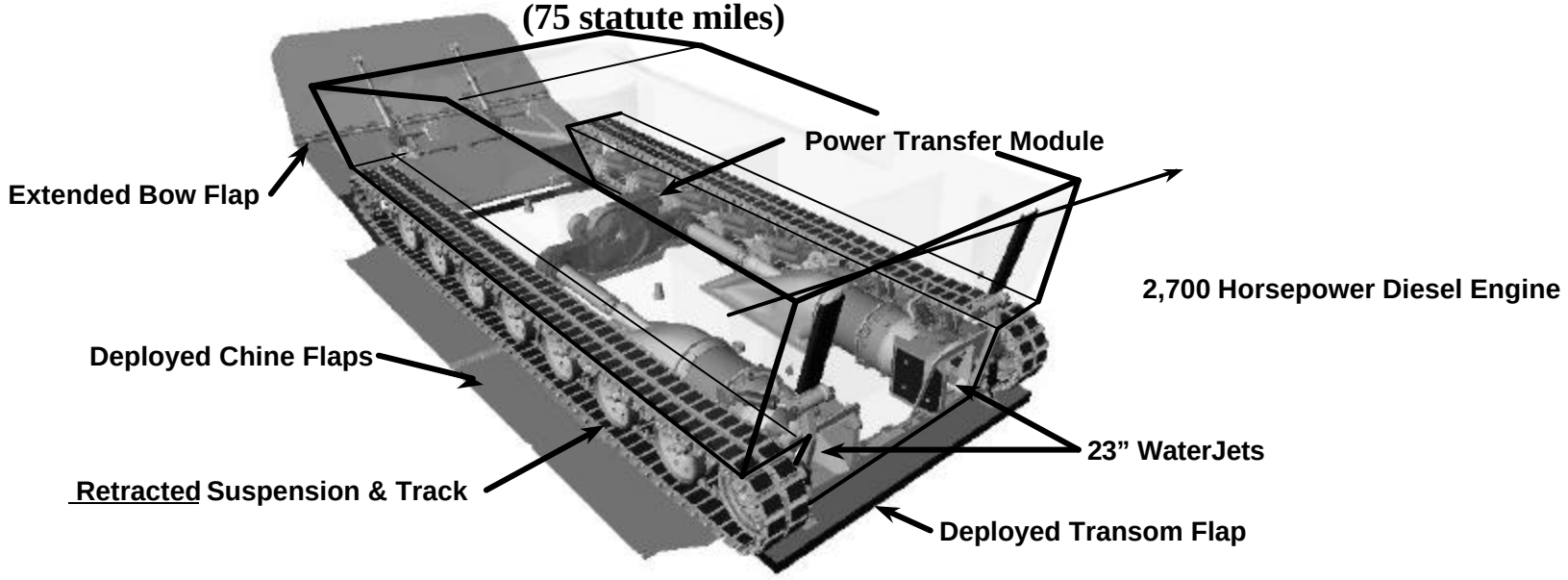

- **Cross-Country Mobility: >= M1A1**
- **Top Speed: 45mph (0-20mph in 7 seconds)**
- **Range: 250 Miles After 1-Hour (25 nautical miles) High Water Speed Transit or 400 miles (land only)**
- **Obstacle Crossing: 8-Foot Trench Span, 3-Foot Vertical Wall**



# AAAV High-Speed Water Mode

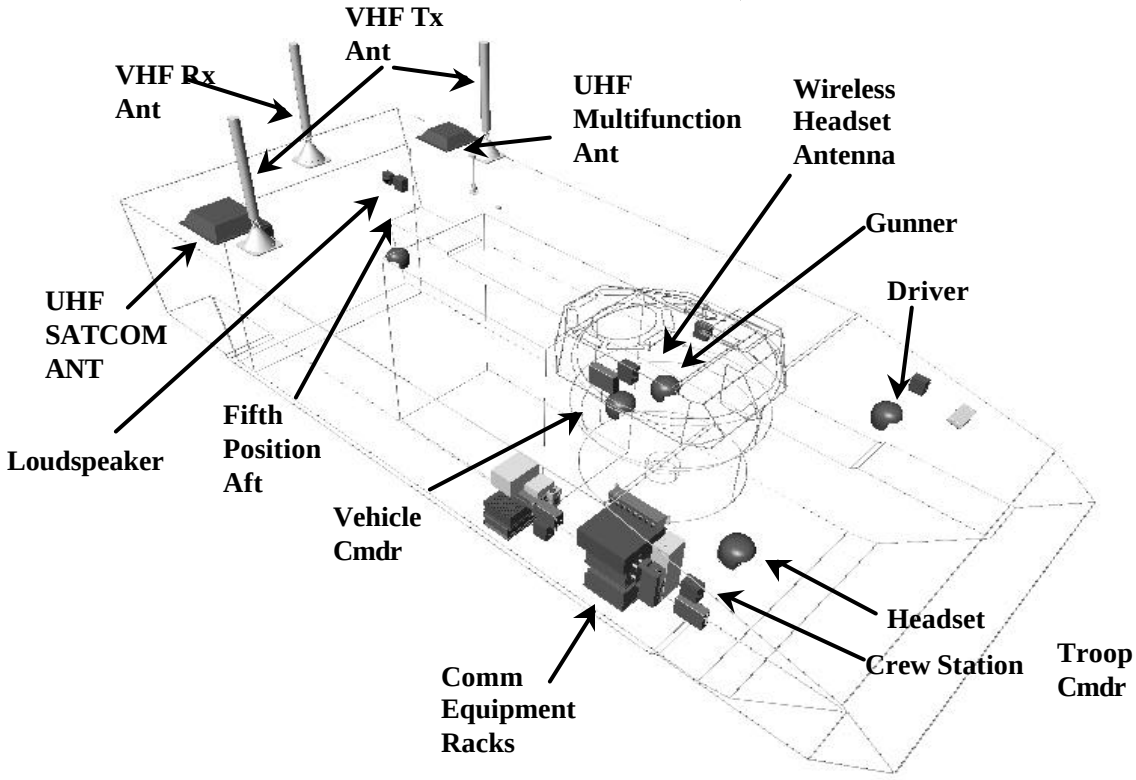


- **Speed: 25 - 30 MPH**
- **High speed ops in Sea State 3**
- **Maintains heading in 3 m significant wave height**
- **High speed turning radius <85 m**
- **Stop within 75 meters**
- **Water Range: 65 Nautical Miles (75 statute miles)**

# AAAV Communication/Navigation

- 3 VHF SINCGARS
- 1 MMBR (SATCOM, UHF and VHF SINCGARS)
- EPLRS
- DACT Interface
- GPS
- Inertial Navigation System (INS)
- Magnetic Heading Indicator



# Mk46 30/40 mm Weapon System

- Two Man Turret
- MK 44 Mod 1 30/40 mm Gun
  - Ready 55 AP/ 160 HE
- M240 7.62 Coax machine gun
  - Ready 600
- Full Solution (M1A2) Fire Control
- Fully Stabilized - Acquire & shoot on the move
- 2nd Gen FLIR (240x4)
- Eye Safe Laser Range Finder
- Embedded Training
- Open System Architecture
- DTUPC: MK 46 IN FY00: $ 1.3M

# AAAV(C) System Description

**C2 SYSTEMS**
- Advanced Field Artillery Tactical Data System
- C2 Personal Computer
- Intelligence Analysis System
- Tactical Operations Combat

**OPEN SYSTEMS**
- Flexibility for Technology and Software Enhancements

**NAVIGATION SYSTEMS**
- Global Positioning System
- Inertial Navigation System
- Compass

**LETHALITY**
- 7.62mm, M240 Machine Gun

**VEHICLE PERFORMANCE**
- Mobility, Armor Protection, Same as the AAAV(P)

**COMMUNICATION CAPABILITY**
- 6 Single Channel Ground and Air Radio Systems
- 2 Enhanced Precision Location Reporting System radios
- 2 Multi-Mode Multi-Band Radios
- Wireless Voice Intercom
- Migration to Joint Tactical Radio System planned for the future
- High Frequency Radio
- Interoperable

**MOBILE COMMAND AND CONTROL**
- Accommodates a staff of 6-9 Marines
- Vehicle Crew of 3

# PDRR to SDD (EMD)

## Where we were…..

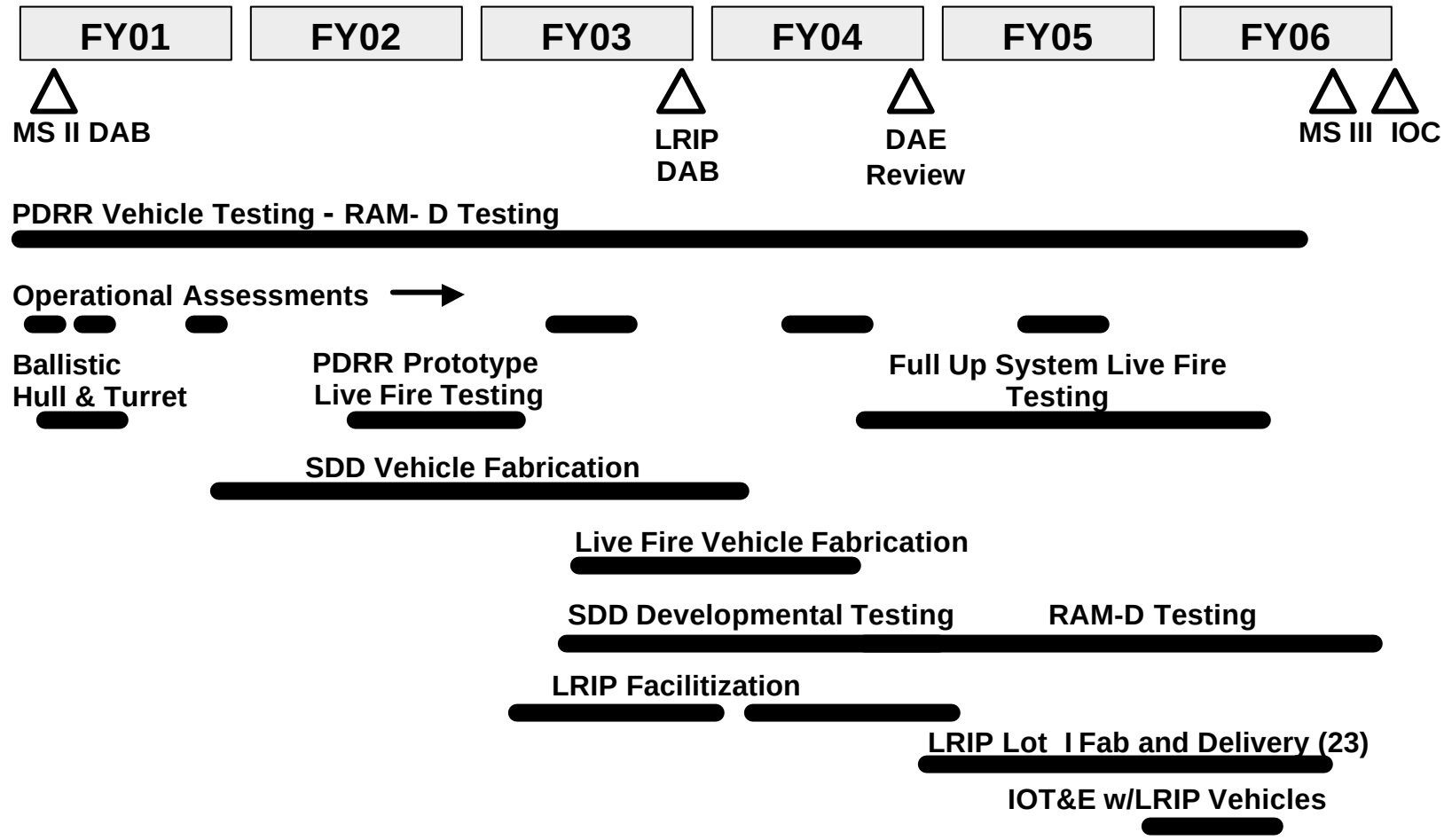
PDRR= Objective Vehicle Functionality
- "First Cut" Design
- Hand Built




## Where we are going….

SDD= Production Representative Vehicles
- Mature Design
- Demonstrate Reliability & Supportability
- Prepare for Production
- IOT&E (Final Exam)

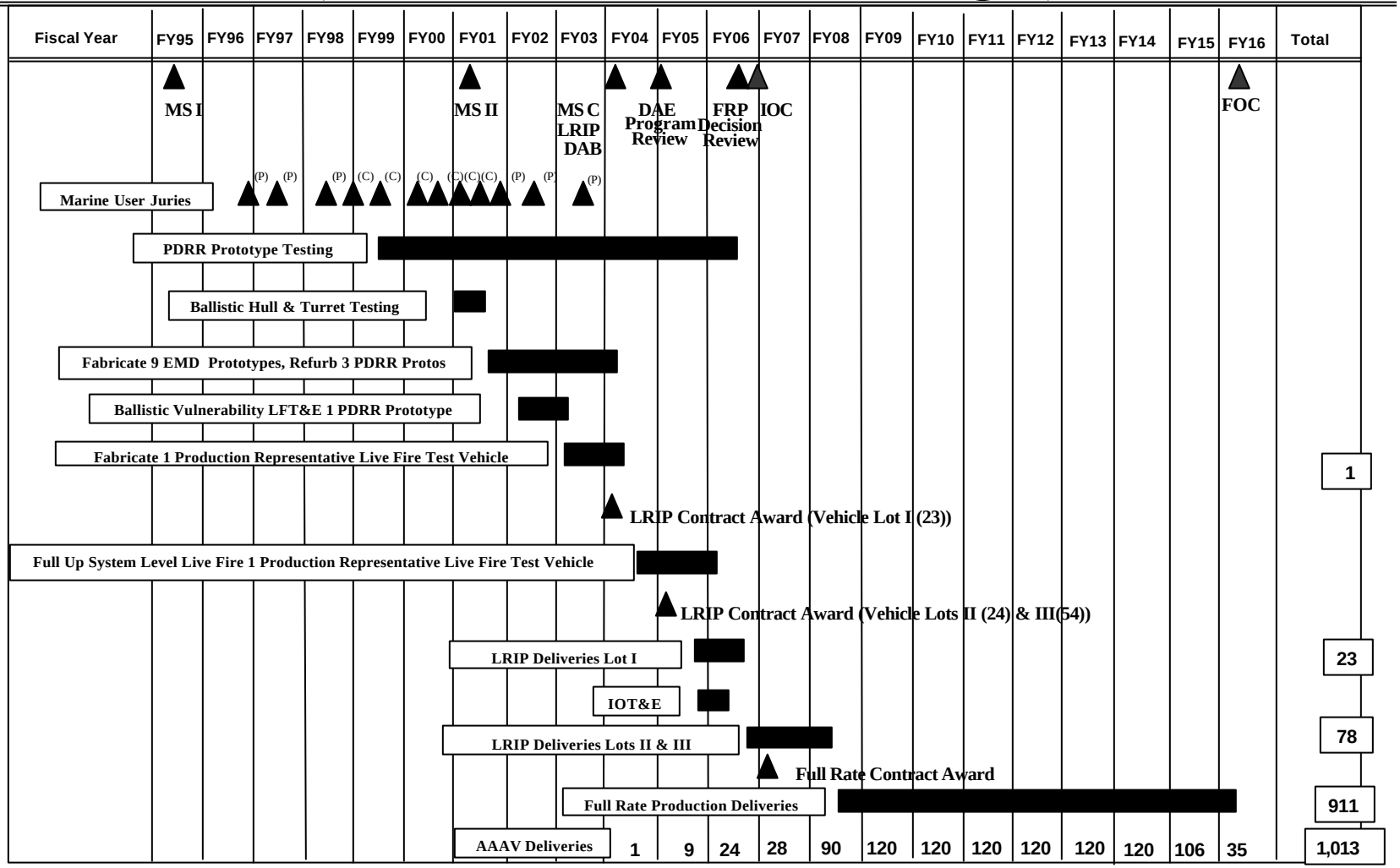

# AAAV SDD Schedule



# Prototype Status

- **Vehicle P0001**
  - High Water Speed Testing at Patuxent River NAS (Pax River)
- **Vehicle P0002**
  - Land Mobility Testing at Aberdeen Test Center (ATC)
- **Vehicle P0003**
  - Final Functional Integration in process
  - Used for Logistics Demonstration
- **Ballistic Hull and Turret (BH&T)**
  - Ballistic Testing at ATC

# AAAV Program Schedule
## (On Schedule,Within Budget)



# Questions


AAAV Web Site  http://www.aaav.usmc.mil